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Main method of diagnosis of silent myocardial ischemia

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Abstract

© 2016, International Journal of Pharmacy and Technology. All rights reserved.The presence of “silent” myocardial ischemia is an unfavorable prognostic factor increasing the risk of coronarogenic complications by 2-19 times, the risk of sudden death by 3-9 times. Early and timely diagnosis of ischemic heart disease is a strategic objective, and a clinical, social and economic problem. The analysis of recent publications devoted to the diagnosis of SMI was conducted. The SMI diagnosis is based on various instrumental methods of research that can objectify the presence of myocardial ischemia. The most common and available SMI diagnostic techniques are electrocardiographic methods. SMI can be rarely detected with standard ECG at rest, more often - with Holter ECG, one can identify the number of SMI episodes and their duration, draw parallels with the nature of the patient’s activity during the day, conduct the analysis of ischemic episodes circadian variability, and their correlation with the heart rate and ectopic activity. In case of insufficient data of ECG at rest and Holter ECG, the exercise tests are performed: exercise stress test (EST), treadmill test. Cardioselective test with transesophageal atrial electrical stimulation (TEES), excluding a number of peripheral factors, in which the imposition of artificial frequent heart rhythm causes an increase in myocardial oxygen demand. The assessment of coronary flow reserve, myocardial perfusion can be conducted with the use of coronary angiography (CAG), perfusion tomoscintigraphy (method of single photon emission computed tomography), and electron beam computed tomography. There is a direct correlation between the presence of the SMI phenomenon and detection of stenosis of coronary arteries (CA). A multislicecomputed tomography (MSCT) - coronary angiography is a noninvasive technique for evaluation of the CA state, which allows identifying pathological changes and clarifying the indications for the choice of preventive or treatment method for coronary heart disease. The local myocardial contractility is determined with: echocardioscopy (ECHOCS), stress-ECHOCS, stress-ECHOCS with tissue Doppler imaging, and the radiopaque or radionuclide ventriculography. Heart imaging with the help of magnetic-resonance imaging (MRI) provides a detailed assessment of structural features of the cardiac and vascular chambers, allows investigating the intracardiac hemodynamics, functional performance of the heart, measuring the velocity of blood flow in large vessels. In most cases, cardiac MRI can serve as a method of a second-line diagnosis upon obscure results of other methods of research (especially ECHOCS). Knowing the basic methods of diagnosis allows identifying patients with SMI and starting early treatment, preventing thereby the adverse outcome.

Keywords

Coronary angiography, Diagnosis, Electrocardiography, Silent myocardial ischemia